• EPA reports secondhand smoke poses serious health risk to nonsmokers • Cryptosporidium kills 103, sickens

regulation • EPA reports recycling rates tripled since 1970 **1994** • Comprehensive plan proposed to protect Long

PLANET

"The supreme reality of our time is...the vulnerability of our planet."

— John F. Kennedy, Speech, June 28, 1963

It must have made quite a splash. Sometime in October 1998, a chunk of ice larger than the state of Delaware broke off Antarctica's Ronne Ice Shelf and began floating north to eventually melt and add its enormous cargo of water to the slowly rising sea.

The breakup and melting of polar ice - Arctic ice has lost 40 percent of its volume in the last 40 years - is dramatic evidence of global warming. Since the late 19th century, mean surface temperatures have increased significantly - temperatures in Albany, New York have warmed by more than 1°F - and the 1990's were the warmest decade on record.

Scientists anticipate that the average global surface temperature will rise by as much as 6.3°F by 2100, with significant regional variation. Evaporation will increase as the climate warms, which will increase average global rainfall. Soil moisture may decline in many regions, and intense rainstorms are likely to become more frequent.

The debate over global warming has shifted from whether, to how much for how long. And what we can do about it. The fact is, there is much that can be done.

The earth's climate is changing because people are altering the chemical composition of the atmosphere. So-called greenhouse gases - primarily carbon dioxide (CO_2), methane and nitrous oxide - trap some of the sun's energy, retaining heat somewhat like the glass panels of a greenhouse. Since the industrial revolution, fueled by the burning of coal and oil, atmospheric concentrations of CO_2 have increased nearly 30 percent. Compounding the problem are emissions of synthetic greenhouse gases like chlorofluorocarbons (CFCs), most commonly used in refrigerants. A CFC molecule is several thousand times more effective at retaining heat than a CO_2 molecule.

Arctic Ice: Forty percent loss in 40 years

One effect of global warming is the rising sea. Sea level rose by 10 to 15 inches along much of the New York/New Jersey coastline during the last century, and it is likely to rise another two feet or more by 2100. At the same time, the warmer ocean can be expected to breed ever more powerful hurricanes, magnifying the impacts of sea level rise. The New Jersey coastline and Long

...s 400,000 in Milwaukee • Common Sense Initiative begins industry-by-industry approach to environmental ...g Island Sound • New standards set to cut toxic air pollution from chemical plants by 90% in three years •

Map Credit: L. Timander/EPA

Shaded areas show the impact of predicted sea level rise.

Island's south shore, with their long narrow barrier islands, would both suffer extensive damage from sea level rise and coastal storms. The Region's high-density coastal real estate and recreational beaches are at risk, as are the coastal salt marshes and tidal flats that provide flood protection, water quality benefits, and habitat for native species. Increased hurricane activity would have significant impacts on Caribbean islands.

The world community has demonstrated its ability to confront this global environmental problem. The discovery of an ozone hole over Antarctica, and the fact that CFCs were responsible for the breakdown of atmospheric ozone led, in 1989, to the Montreal Protocol in which nations agreed to the world-wide phase out of CFCs. EPA then banned the production and importation of CFCs. In a relatively short time, chemical substitutes for CFCs have been developed. CFCs continue to be smuggled into the United States and EPA aggressively polices illegal use of these destructive compounds.

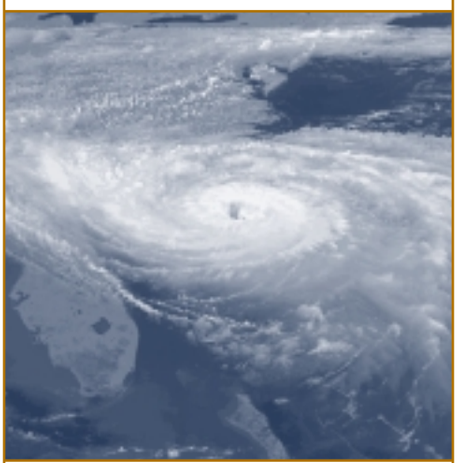

Photo Credit: DeKalb College

Global warming is expected to increase the number and intensity of hurricanes.

Fortunately, much of EPA's work to reduce air pollution has the substantial side benefit of reducing the emission of various greenhouse gases. In addition, EPA proactively promotes a number of voluntary programs encouraging smarter and more efficient energy use. The Green Lights program encourages facilities in both the private and public sectors to convert to energy-efficient lighting. Reducing the use of electric power cuts the emission of greenhouse gases at the same time it cuts the participants' utility costs. Regionally, more than 300 Green Lights participants are saving over six billion kilowatt hours of electricity per year. This has reduced carbon dioxide pollution alone by some 8.7 million pounds - the equivalent of taking 256,000 cars off the road!

EPA's Energy Star program encourages electrical energy efficiency in everything from refrigerators and washing machines to entire office buildings. EPA is proud that 290 Broadway, our Regional Headquarters in New York City, was recently recognized as the first ultra energy-efficient federal building in America. And our Agency computers are also Energy Star products, designed with automatic "sleep" functions to save electricity when they're not being actively used.

American bald eagle is upgraded from an endangered to threatened species • Executive Order addresses e

• Puerto Rico Environmental Quality Board begins charging companies for air pollution 1995 • Radium Chemical S

Photo Credit: M.H.Cervantes/EPA

Reg. Admin. Jeanne Fox discussing water quality with the news media.

The increased use of our natural resources to produce energy is directly related to the sheer number of people on the planet. World population hit six billion in October 1999. If population growth - explosion may be the better word - continues at the current rate, it will hit ten billion within most of our lifetimes.

The environmental problems faced today are complex and it is sometimes difficult to see them or measure their direct impact. Thirty years ago, we were talking fish kills and buried drums; today, climate change, the depletion of stratospheric ozone, loss of biodiversity, and the spread of persistent organic pollutants that are threatening global ecosystems.

There is hope. The Montreal Protocol is an encouraging precedent. The United States, as a leader in environmental protection, brings much to the table. We have scientific and technical expertise that other countries need and want. EPA's international program has helped dozens of countries reduce risks to human health while improving the state of their environment. Region 2 has focused on Eastern Europe, with particular emphasis on Bulgaria.

A major key to making global decisions is better and expanded communication. We now have the Internet, and television has become a truly international information medium. People are helped in making rational decisions when risk is understood - travel when roads are clear; don't go out in an ice storm. But when risk is unclear, emotions can drive the decision-making process. EPA's Environmental Education program for children and adults works to better communicate the concepts of risk and exposure, and to provide the information people need to become better decision makers.

Photo Credit: M. Jaeger/EPA

Dep. Reg. Admin. William Muszynski providing technical assistance in Varna, Bulgaria.

The Tribal Nations

Region 2 works on a government-to-government basis with seven federally-recognized Indian Nations. EPA is assisting the Nations in their development of culturally-based environmental standards, which take into account oral tradition and knowledge. Waste treatment plants have been funded for three of the Nations. Other assistance supports development of environmental capabilities ranging from starting recycling programs to closing underground gasoline tanks.